

WHAT IS CLAIMED IS:

1. A method for extracting a face position, comprising steps of:  
preparing digital data of a value of each pixel within an object  
image region including a region of a human face;  
extracting in said object image region position of a  
5 Between-the-Eyes candidate point through a filtering process with a  
Between-the-Eyes detecting filter in which six rectangles are connected;  
and  
extracting a portion of said object image in a prescribed size which  
has the extracted position of said Between-the-Eyes candidate point at a  
10 center, and selecting a true candidate point from said Between-the-Eyes  
candidate points in accordance with a pattern discriminating process.
2. The method for extracting a face position according to claim 1,  
wherein  
said Between-the-Eyes detecting filter is one rectangle divided into  
six segments.
3. The method for extracting a face position according to claim 1,  
wherein  
said six rectangles includes  
two first rectangles adjacent to each other in a vertical direction,  
5 two second rectangles displaced relative to said first rectangles by a  
prescribed amount in said vertical direction, and adjacent to each other in  
said vertical direction, and  
two third rectangles displaced relative to said second rectangles by  
a prescribed amount in said vertical direction, and adjacent to each other in  
10 said vertical direction.
4. The method for extracting a face position according to claim 1,  
wherein  
said step of selecting a true candidate point includes steps of

5 detecting positions of eyes through a pattern discriminating process  
with respect to said object image that corresponds to prescribed two  
rectangles among rectangles forming said Between-the-Eyes detecting  
filter,

correcting the position of said Between-the-Eyes candidate point to  
a middle point between two eyes based on said detected positions of the  
10 eyes,

rotating an input image around said corrected position of  
Between-the-Eyes candidate point such that the two eyes are aligned  
horizontally, and

15 extracting from said rotated input image a portion of said object  
image in a prescribed size which has the corrected position of said  
Between-the-Eyes candidate point at a center, and selecting a true  
candidate point from said Between-the-Eyes candidate points in accordance  
with a pattern discriminating process.

5. The method for extracting a face position according to claim 1,  
wherein

said step of preparing digital data includes a step of  
preparing said object image as a stereo image, and  
5 said step of selecting a true candidate point includes a step of  
selecting a true candidate point from said Between-the-Eyes  
candidate points in accordance with a distance to said Between-the-Eyes  
candidate point from an observation point that is detected based on said  
stereo image.

6. A program product for causing a computer to execute a method  
for extracting a face position within an object image region, said program  
product causing said computer to execute steps of:

5 preparing digital data of a value of each pixel within an object  
image region including a region of a human face;

extracting in said object image region position of a  
Between-the-Eyes candidate point through a filtering process with a

Between-the-Eyes detecting filter in which six rectangles are connected;  
and

10        extracting a portion of said object image in a prescribed size which  
has the extracted position of said Between-the-Eyes candidate point at a  
center, and selecting a true candidate point from said Between-the-Eyes  
candidate points in accordance with a pattern discriminating process.

7. The program product according to claim 6, wherein  
said Between-the-Eyes detecting filter is one rectangle divided into  
six segments.

8. The program product according to claim 6, wherein  
said six rectangles includes  
two first rectangles adjacent to each other in a vertical direction,  
two second rectangles displaced relative to said first rectangles by a  
5        prescribed amount in said vertical direction, and adjacent to each other in  
said vertical direction, and  
two third rectangles displaced relative to said second rectangles by  
a prescribed amount in said vertical direction, and adjacent to each other in  
said vertical direction.

9. The program product according to claim 6, wherein  
said step of selecting a true candidate point includes steps of  
detecting positions of eyes through a pattern discriminating process  
with respect to said object image that corresponds to prescribed two  
5        rectangles among rectangles forming said Between-the-Eyes detecting  
filter,

correcting the position of said Between-the-Eyes candidate point to  
a middle point between two eyes based on said detected positions of the  
eyes,

10        rotating an input image around said corrected position of  
Between-the-Eyes candidate point such that the two eyes are aligned  
horizontally, and

15 extracting from said rotated input image a portion of said object image in a prescribed size which has the corrected position of said Between-the-Eyes candidate point at a center, and selecting a true candidate point from said Between-the-Eyes candidate points in accordance with a pattern discriminating process.

5 10. The program product according to claim 6, wherein said step of preparing digital data includes a step of preparing said object image as a stereo image, and said step of selecting a true candidate point includes a step of selecting a true candidate point from said Between-the-Eyes candidate points in accordance with a distance to said Between-the-Eyes candidate point from an observation point that is detected based on said stereo image.

5 11. An apparatus for extracting a face position, comprising:  
an imaging unit preparing digital data of a value of each pixel within an object image region including a region of a human face;  
an extracting unit extracting in said object image region position of a Between-the-Eyes candidate point through a filtering process with a Between-the-Eyes detecting filter in which six rectangles are connected;  
and

10 a selecting unit extracting a portion of said object image in a prescribed size which has the extracted position of said Between-the-Eyes candidate point at a center, and selecting a true candidate point from said Between-the-Eyes candidate points in accordance with a pattern discriminating process.

12. The apparatus for extracting a face position according to claim 11, wherein  
said Between-the-Eyes detecting filter is one rectangle divided into six segments.

13. The apparatus for extracting a face position according to claim 11, wherein  
said six rectangles includes  
two first rectangles adjacent to each other in a vertical direction,  
5 two second rectangles displaced relative to said first rectangles by a prescribed amount in said vertical direction, and adjacent to each other in said vertical direction, and  
two third rectangles displaced relative to said second rectangles by a prescribed amount in said vertical direction, and adjacent to each other in  
10 said vertical direction.

14. The apparatus for extracting a face position according to claim 11, wherein  
said selecting unit includes  
an eye detecting unit detecting positions of eyes through a pattern  
5 discriminating process with respect to said object image that corresponds to prescribed two rectangles among rectangles forming said Between-the-Eyes detecting filter,  
a correcting unit correcting the position of said Between-the-Eyes candidate point to a middle point between two eyes based on said detected  
10 positions of the eyes,  
a rotating unit rotating an input image around said corrected position of Between-the-Eyes candidate point such that the two eyes are aligned horizontally, and  
a discriminant process unit extracting from said rotated input  
15 image a portion of said object image in a prescribed size which has the corrected position of said Between-the-Eyes candidate point at a center, and selecting a true candidate point from said Between-the-Eyes candidate points in accordance with a pattern discriminating process.

15. The apparatus for extracting a face position according to claim 11, wherein  
said imaging unit includes

5      a preparing unit preparing said object image as a stereo image, and  
said selecting unit includes  
a select processing unit selecting a true candidate point from said  
Between-the-Eyes candidate points in accordance with a distance to said  
Between-the-Eyes candidate point from an observation point that is  
detected based on said stereo image.